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Executive Summary

of the Roberts Park Allotment Assessment

Glenwood Ranger District
Gila National Forest
New Mexico

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Purpose and Need for Action

The purpose of the proposed action is

- to authorize grazing on the Roberts Park allotment for a ten year period.
- to ensure a level of livestock management that complies with Forest Plan direction and associated resource laws such as the Endangered Species Act.

This action is needed at this time because

- the Rescission Act of 1995 (Public Law 104-19) requires that each National Forest System Unit adhere to a schedule for completion of NEPA analysis and decisions on all allotments within the Forest unit; NEPA must be completed on all allotments listed in schedules that the Chief of the Forest Service directed all Forest units to make within 15 years.
- The current permit expires on 12/31/10
- An application to graze the area has been received from a qualified applicant.

Location and Description of Project Area

The Roberts Park Allotment is located in Catron County, New Mexico, approximately 4 miles north of Glenwood, NM (T10S, R20W, Sec. 32-33; T10S, R21W, Sec. 31-34; T11S, R20W, Sec. 4-9, 16-20, & 30; and T11S, R21W, Sec. 1-18 & 23-25; New Mexico Principal Meridian). The allotment extends from the communities of Mineral Creek and Alma westward to the New Mexico-Arizona state line. Elevations on the allotment range from 4,800 feet near the San Francisco River up to 7,300 feet on Park Mountain.

The Roberts Park Allotment covers approximately 17,250 acres. The vegetation on the allotment consists of species typical of the pinyon-juniper woodland. The majority of the country has open ridge tops with pinyon-juniper on the side-slopes and in the canyons. The dominant grass species include blue, hairy, and sideoats grama, and curly mesquite. There are several forbs like annual filaree and buckwheat. The common browse species are mountain mahogany, grey oak and buckbrush. Mesquite and snakeweed are commonly found on the more arid parts of the allotment. Juniper is the dominant overstory species in many areas.

The average annual precipitation measured at the Glenwood Ranger Station is 17 inches. The growing season average is 8.31 inches measured between June 1 and September 31. In recent years precipitation during the growing season has been variable and has been coming later in the growing season, resulting in sporadic warm season forage production. Temperatures during mid-summer can reach the upper 90s (degrees Fahrenheit) and can occasionally exceed 100 degrees.

Proposed Action (Alternative 2)

1. Issue a term grazing permit that authorizes up to 240 head of livestock (2880 Animal Months) during the grazing year (3/1 through 2/28). However, 40 head (480 Animal Months) will be suspended for 5 years. After this 5 year period, from 0 to the 40 suspended head, may be re-instated. This will be based upon a Range Condition and Trend determination that indicates upward trend is occurring on the majority of the

allotment where that potential exists. In addition, documented monitoring of prescribed use standards validates upward trend in range and watershed conditions. Any horse use will be grazed in lieu of livestock based on the displayed available Animal Months.

2. The grazing system will be a 5 pasture deferment rest-rotation system.
3. Key area locations will be established as monitoring locations and the key species identified.

Prescribed Use: Residual stubble heights of at least 2.5 inches on the blue grama and hairy grama sites, at least 4.0 inches on black grama and 6-8 inches on sideoat grama sites will be maintained throughout the year. Other additional key species identified at the sites will correspond to Holechek and Galt's Grazing Intensity Table (Holechek and Galt 2000).

When monitoring results indicate one or more key areas in a pasture have been reached livestock management will be adjusted. Livestock will be moved to other areas of the pasture where use is less than desired or be moved to the next available pasture. Additionally, when key areas indicate minimum stubble heights have been met, and livestock cannot be moved to other areas, livestock will be removed from the allotment.

Deferment scheduled during the summer growing season (July – October1), as per the grazing rotation plan, must be adhered to. Livestock will not be allowed to graze a pasture that is scheduled for deferment during the defined growing season.

Methodology of measuring stubble heights (monitoring) will be applied to the defined key species in measuring the current year's leaf growth (growth from the most recent growing season). The lengths should be measured in inches, averaged by plant species measured, along two permanent transect locations within each designated key area. The transect origin locations should be placed on lines that represent the site characteristics (physical and vegetative) within the individual key area. Each transect should target the measurement of 25 plants per key species. The average stubble height (leaf lengths) will be determined for that transect for 25 plants per key species, then subsequently averaged between the two transects for that key area. The length of the line will be determined by meeting 25 measurements per key species. The interval for measurement should be every other pace with measurements made to the closest key species plant(s). If multiple key species are identified for an area, they will be treated separately and not averaged between each other. One species will be given preference as the "feature" species in which on the ground grazing management decisions will be made.

4. The San Francisco River would be excluded to livestock grazing.

Issues

The Forest Service sent out a scoping letter dated June 13, 2003, seeking comments on the Proposed Action. The comments were reviewed and issues were identified based on the comments. The Forest Service separated the issues into two groups: significant and non-

significant issues. An issue is defined as a point of disagreement, debate, or dispute with a proposed action based on some anticipated direct or indirect effect. Non-significant issues were identified as those that are: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons regarding their categorization as non-significant may be found at the Gila National Forest Supervisor's Office in the project record.

As for significant issues, the Forest Service identified three issues raised during scoping. These issues include:

1. The proposed action would reduce permitted numbers by 41.5 %-49% (from 4752 AM – or 396 head yearlong – to 2400-2800 AM or 200-240 head yearlong, with the greater number being dependent on range condition measures after 5 years at 200 head). This reduction, combined with cumulative changes in livestock numbers, would adversely affect the County tax base, economy, and socio-cultural components of potentially affected communities.
2. Grazing use prescriptions and livestock capacity should be studied, monitored and applied based on local site objectives and resource objectives. Additionally, an allotments range improvement infrastructure and existing and its conditions influence grazing use prescriptions and capacity.
3. Grazing is needed to reduce fuels and fire hazard.

Alternatives to the Proposed Action

Alternative 1 (No Action)

No Permit would be issued, and no grazing would be allowed.

Alternative 3

Authorize grazing for 217 -396 head of cattle and 8 head of horses yearlong (3/1-2/28). For the first two years of the new permit, 308 livestock and 8 head of horses would be grazed.

In order to increase the number of livestock, animal units would be increased proportionately to the measured under-use of the 35% utilization standard and authorized through the Annual Operating Instructions (AOI). If utilization occurs over the 35% standard, adjustments will be made through reduction in livestock numbers and/or adjustments in grazing management actions (i.e. actions could include but are not limited to moving cattle: to other parts of the pasture; to another pasture before scheduled; or off the allotment) and reflected in the AOI or an amended AOI for that grazing year.

A deferred-rest rotation system would be designed to rotate livestock through the five main pastures with one pasture deferred during the growing season each year. Of the four pastures

scheduled for use in a year during the growing season, the “Best Pasture” concept can be applied in the yearly scheduling of use and captured in the AOI. During the grazing year and at the end of the grazing year, pasture rotations will be re-evaluated and any adjustments to the rotation made based on identified utilization levels as determined through monitoring of key areas. Forage availability will be based on permittee and Forest Service key area monitoring.

Grazing management objectives

- Defer one pasture for the entire growing season each year. Each pasture will be deferred one time in five years.
- “Best Pasture” concept applied to pastures not scheduled for deferment for a given year.
- Livestock movement within pastures will be accomplished through the use of the strategic placement of salt and mineral or protein blocks, and limiting access to water. Additional livestock movement techniques may be employed as necessary.
- In years where there is an abundance of annual weed growth, and utilization standards have not been met or exceeded, livestock will be moved between pastures to take advantage of this growth.
- Continue to exclude the San Francisco River from grazing.

Improvements

In order to provide management flexibility and reliable water in Frisco pasture, Hicks and River pastures will become part of the pasture. The combining of these three pastures will provide additional water at Holiman well, and the repair of Joe tank will deter cattle from trailing across Frisco flats to water at Ellis and Hicks tanks.

The Horse and Vigil pastures are adjacent to deeded land and will be used for a hospital pasture. These pastures will also serve as short-term holding pastures for shipping.

To provide dependable water and improve livestock distribution:

- Re-evaluate and expedite the repair (depending on the availability of funds for the permittee and/or the Forest Service) of Joe Tank that provides water to both Vigil and Frisco pastures.
- Continue to repair the existing Stateline rim tank water system. This pipeline will be extended and additional drinkers added to locations in the Fox and Beaver pastures under separate decisions as needed.
- Continue to repair the existing Ridge Well Rim tank water system. This pipeline will be extended and additional drinkers added to locations in the southeastern portion Frisco and the western portion of River pastures under separate decisions as needed.
- Repair existing rim tank water systems in Cabin and Roberts Park pastures as needed (depending on the availability of funds for the permittee and/or the Forest Service).

- Fence the Vigil Canyon springhead and riparian area. Vigil tank will still be available to livestock.

Monitoring

The utilization standard is 35% for the allotment. Monitoring will be conducted through collaborative efforts. In addition, in collaboration with the permittee, New Mexico Department of Agriculture, the Range Improvement Task Force, and the New Mexico Game and Fish, key areas and key species will be determined for each pasture in accordance with Forest Service Guidelines.

Measuring utilization through a use of appropriate methods can vary. Methods may include but are not limited to: stubble heights measurements, utilization cages, and photo points. Through this process, adjustments in monitoring methodology can be made annually through the AOI process.

Alternative 4 (Existing Management 2004 AOI)

Authorize a 10-year livestock-grazing permit for 396 head yearlong (3/1-2/28) and 8 horses. 308 livestock and 8 head of horses would be grazed in Grazing Year 2004. Grazing management would be a 5-pasture, deferred-rest rotation system. The minimum stubble height requirements set for this allotment will be **2.5 inches on Blue grama** grasses within fair condition range during the growing season (May 1 through Sept 30) and **2.0 inches on Blue grama** grasses within fair condition range during the dormant season (October 1 through April 30), **2.5 inches on Blue grama** grasses within poor condition range during the grazing year and **1.2 inches on sod bound Blue grama**.

Stubble height will be measured in the key monitoring areas shown below for this allotment. Adherence to minimum stubble height requirements *is mandatory, and is a key factor* in adjusting grazing management.

Adjustments in numbers, rotation schedule, or season of use will be made if minimum stubble height requirements are met. Cattle will be moved to the next scheduled pasture or off the allotment if other pastures are not available when minimum stubble height requirements are met. The option to return livestock to a pasture that has received adequate plant re-growth will be considered if all resource objectives can be met.

Comparison of Alternatives

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. This summary should aid in the comparison of the effects each alternative is expected to have on the environment. The issues that were identified as significant during the Scoping process are also summarized. A complete presentation of the environmental effects will be in the Environmental Assessment, Environmental Consequences section that will be completed prior to the decision.

Range Condition and Trend including Issue: *Grazing use prescriptions and livestock capacity should be studied, monitored and applied based on local site objectives and resource objectives. Additionally, an allotments range improvement infrastructure and existing and its conditions influence grazing use prescriptions and capacity.*

In 2003, Roberts Park Allotment was grazed year-round for the first time since 1995. Prior to 1995, year-round grazing occurred on the allotment, and included the adjoining Harve Gulch Allotment. From 1995 to 2002, the allotment has only been grazed 6 months of the year during the dormant season.

Data from range transects show that across most of the allotment, the vegetation is in stable condition and has improved since the 1950's. Currently, approximately 5.5% (939 acres) of the allotment is in "good" range condition, 61% (10,369 acres) in "fair", 28% (4891 acres) in "poor", and 3.9% (674 acres) in "very poor" condition. Approximately 13,343 acres of the allotment is below 30% slopes, of which 34% (4,493 acres) are in "poor" or "very poor" condition. In the 0-10% slope class, which is favored by livestock most of the year, almost 50% of the areas is in "poor" or "very poor" condition range. It is estimated within the 0-10% slopes that the potential exists for the "poor" condition range to move to "fair". It is doubtful that the same potential exists for the "very poor" condition range in the Sunflower Mesa vertic soil types. Currently, the "very poor" range condition areas are experiencing a static trend, whereas the "poor" condition range is for the most part experiencing an upward apparent trend. The allotment has realized an upward trend in most of the areas that have the potential for additional upward movement. Sites in the vertic soils of the Sunflower Mesa area are limited in showing an upward trend based on the site characteristics and potential.

The process of allotment management planning is conducted through an interdisciplinary team process. Members work together to compile the range allotment objectives and develop the grazing management, prescriptions, and use levels. In evaluating livestock capacity, all available information related to the allotment being analyzed is considered and if additional information is required, further data collection or file record research is conducted. This includes information such as:

- Actual use for the allotment, usually over the previous 10 years
- Examination of existing and proposed grazing system management prescriptions.
- All range improvements and their functional status and locations. This includes fences and waters.
- Vegetation information from cluster sites, pace transects, and/or ocular estimates
- Range condition and trend
- Production and utilization and/or utilization monitoring data
- Soil and watershed conditions
- Allotment topography

In the case of the Roberts Park Allotment, in estimating capacity, different calculations are performed to get a range of values based on using Holocek (1988), which takes into account

slope, distance from water (which includes reliable waters), and forage production. For this analysis:

- An estimate was made for the entire allotment based on existing range infrastructure and the assumption that all water sources were functional and water was available.
- An estimate was made for the entire allotment based on stock tank water availability, during a typical dry year, such as 2002.
- An estimate was made for each individual pasture based on average forage production by pasture and each pasture 100% watered (within 1 mile to water).

Implementation monitoring can validate whether allotment objectives are being met in reference to achieving utilization standards in key area locations over time which can result in changes in livestock numbers or allotment management implemented through the Annual Operating Instructions, which are within parameters of the Allotment Management Plan.

Alternative 1: No action

Under this alternative cattle would not be grazed on the allotment so, grazing use levels on the key forage species in all key areas and adjacent areas on the allotment would be incidental (less than 10%) by wildlife. It is predicted that the physiological growth requirements of the forage plants would be favored in all key areas and adjacent areas on the allotment. Therefore areas on the allotment would realize an increase in desirable forage plant densities and plant residues. Additionally, there will be an increase in plant species composition and improved vigor of forage plants. The overall forage production (biomass) would also increase. These factors would influence the range condition and trend to continue to move upwards on portions of the allotment that have the potential (C1, C2, C4, C5 and C6). Areas outside of normal livestock occurrence (slopes greater than 40%) and vertic soils in the Sunflower mesa area (C3, Beaver Pasture) would for the most part remain stable or fluctuate slightly up or down based upon growing season precipitation patterns. Measured range condition and trend anywhere would not be expected to change to a higher range condition class in the next 10 years except for the C1 area. The C1 transect existing condition scored in high end of the fair condition range (40-60). Implementation of Alternative 1 would meet the desired range resource objectives for the project with a high degree of certainty.

Alternative 2: (Proposed Action)

As described in this alternative; the prescribed use levels (0-30%) on the key forage species in all key areas and adjacent areas on the allotment would be considered light intensity. This alternative assures a minimum stubble height to be maintained in all years including low forage production or drought years. Based on these light use prescriptions it is predicted that the physiological growth requirements of the forage plants would be favored in all key areas and adjacent areas on the allotment. Therefore areas on the allotment will realize an increase in desirable forage plant densities and plant residues. Additionally, there would be an increase in plant species composition and improved vigor of forage plants. The overall forage production (biomass) would be maintained in average precipitation years (growing season: June-Sept) and increase in above average precipitation years (growing season: June-Sept). Additionally, an adequate forage surplus would become abundant in and adjacent to key areas of the allotment and would become important in

years of below average precipitation by assisting to support livestock numbers and distribution. All these factors combined will influence the range condition and trend to continue to move upwards on portions of the allotment with the potential (C1, C2, C4, C5 and C6).

Areas outside of normal livestock occurrence (slopes greater than 40%) and vertic soils in the Sunflower mesa area (C3, Beaver Pasture) would for the most part remain stable or fluctuate slightly up or down based upon growing season precipitation patterns. Measured range condition and trend anywhere would not be expected to change to a higher range condition class in the next 10 years except for the C1 area. The C1 transect existing condition scored in high end of the fair condition range (40-60).

This alternative will promote a forage base that will sustain livestock yearlong at the prescribed stocking level in all but the most severe drought years. However, past forage production and livestock utilization data is lacking to verify the stocking level of this alternative on the allotment. Permitted numbers were established based on the transfer of livestock numbers by preference when the allotment was established. Also, the allotment has not realized yearlong grazing as a single unit since 1979 and subsequent monitoring data is lacking to substantiate a stocking level through multiple years. Documentation of the number of livestock using the allotment (actual use), as well as the accomplishment of meeting use standards in the next 3 years will assist in validating the stocking level for the allotment.

Adherence to the prescribed use standards and other specific elements of this alternative will insure the success of this grazing strategy to meet range resource objectives.

Alternative 3:

As described in this alternative, the prescribed use levels on the key forage species in all key areas and adjacent areas on the allotment would be conservative. The use standard of 35% is assigned to all key species, however, blue grama is more dominate and for the most part this is conservative use of this forage species. Based on these conservative use prescriptions and that they are not being exceeded; it is predicted that the physiological growth requirements of the forage plants would be favored in all key areas and adjacent areas on the allotment. Thus, these key areas and adjacent areas on the allotment will realize an increase in desirable forage plant densities and plant residues. Furthermore, there will be an increase in plant species composition and improved vigor of forage plants. The overall plant biomass (forage production) would be maintained in average precipitation years (growing season: June-Sept) and increase in above average precipitation years (growing season: June-Sept).

Additionally, a forage surplus in and around key areas of the allotment will become apparent and would become important in years of below average precipitation to aid in sustaining livestock numbers and distribution. All these factors combined will influence the range condition and trend to continue to move upwards on portions of the allotment with the potential (C1, C2, C4, C5 and C6).

Areas outside of normal livestock occurrence (slopes greater than 40%) and vertic soils in the Sunflower mesa area (C3 Beaver Pasture) would for the most part remain stable or fluctuate slightly up or down based upon growing season precipitation patterns. Measured

range condition and trend anywhere would not be expected to change to a higher range condition class in the next 10 years except for the C1 area. The C1 transect existing range condition scored in high end of the fair condition range (40-60). The difference in range condition and trend in this alternative opposed to alternative 2 would be that use levels of 35%, although conservative, may be a factor when grazing forage plants during years of minimal forage production (drought) while in alternative 2, if minimum stubble heights are not achieved in forage production, livestock would not be grazed. This is because in years of drought, forage plants are already stressed and additional disturbance by grazing would be avoided. Thus, the forage plants will have the ability to respond more rapidly to precipitation when it becomes available. The rate of trend movement would be the main difference between alternatives 2 and 3. Trend movement is more rapid in alternative 2.

Based upon all the data available for this analysis, implementation of Alternative 3 would meet the desired range resource objectives with a lower degree of certainty, especially in below average precipitation years, than alternative 1 and 2. Also, past forage production and livestock utilization data is lacking to verify the stocking level of this alternative on the allotment. Permitted numbers were established based on the transfer of livestock numbers by preference when the allotment was established. Also, the allotment has not realized yearlong grazing as a single unit since 1979 and subsequent monitoring data is lacking to substantiate a stocking level through multiple years. Documentation of the number of livestock using the allotment (actual use), as well as the accomplishment of meeting use standards in the next 3 years will assist in validating the stocking level for the allotment.

Adherence to the prescribed use standards and other specific elements of this alternative will insure the success of this grazing strategy to meet range resource objectives.

Alternative 4 (Existing Management; 2004 AOI)

As described in this alternative, prescribed use levels on the key forage species in key areas and adjacent areas on the allotment would be light to heavy (0-60%). The physiological growth requirements of the forage plants would not be favored in all key areas and adjacent areas on the allotment. The sites where the 1.2 stubble heights on blue grama are implemented would prevent upward range condition and trend by preserving the monotypic nature of blue grama in these areas. The sites in poor condition would at best remain in poor condition. On key areas implementing the 1.2 stubble height standard on blue grama, the desirable forage plant density and plant residue would not be maintained or increased and plant species composition and vigor of forage plants would not improve. In these areas, plant biomass (forage production) would not be maintained in average precipitation years and not increase in above average precipitation years.

However, improvement in plant composition and density should continue to improve on portions of the allotment where the 2.0-inch dormant season and 2.5-inch growing season stubble height standard on blue grama is implemented. Range condition and trend would not move upwards on portions of the allotment that are in poor or very poor condition where the 1.2 stubble height standard on blue grama is implemented. Range condition and trend should continue to move upward on portions of the allotment where the 2.0-inch dormant season and 2.5-inch growing season stubble height standards on blue grama are implemented. Slopes greater than 40% would for the most part remain similar or fluctuate slightly up or down based upon growing season precipitation patterns.

Based upon the data available for this analysis, implementation of Alternative 4 would not meet the desired range resource objectives on portions of the allotment where the 1.2-inch stubble height standard is implemented. In addition, as in alternative 3, forage production and livestock utilization data is lacking to verify the stocking level of this alternative on the allotment. Permitted numbers were established based on the transfer of livestock numbers by preference when the allotment was established. Also, the allotment has not realized yearlong grazing as a single unit since 1979 and subsequent monitoring data is lacking to substantiate a stocking level through multiple years. Documentation of the number of livestock using the allotment (actual use), as well as the accomplishment of meeting use standards in the next 3 years will assist in validating the stocking level for the allotment.

Watershed, Soils, and Air:

Watershed and Soils: The Roberts Park Allotment is located within the Whitewater-San Francisco 5th code watershed. The overall watershed is in satisfactory condition, but there are areas of unsatisfactory watershed condition, especially in areas associated with pinyon-juniper woodland vegetation and on soils formed from Gila conglomerate.

Based on Terrestrial Ecosystem Survey, the soils on the Roberts Park Allotment are formed from basalt and Gila conglomerate parent materials. The basalt parent material tends to have high amount of cobble and stone-sized rock, which helps hold soils in place. Gila conglomerate is highly erosive and is comprised of large amount of clay. This clay content can cause the soils to shrink and swell in response to wetting and drying conditions. This shrink/swell action makes it difficult for plants to become established and allows for increased chances of erosion. These soils can be found in localized areas within the allotment.

Range transect data read in 1957 and again in 1995 looked at soil stability across the allotment. The transect data indicates that the amount of bare ground has been decreasing across the allotment over the last forty years, with the exception of no change at Cluster C3. (Holloway, 2004). Although bare ground has decreased, the presence of rock has increased in some areas. This indicates that there has been some soil loss that has resulted in exposure of the underlying rock. However, there has also been an increase in the amount of vegetation and litter, indicating that more plants have grown within the transect areas, with the exception of C3. Vegetation, litter and rock provide ground cover, and subsequently provide a reduction in bare soil and reduced likelihood of erosion. These transects are usually located in gently sloping topography and may not be representative of the steeper portions of the allotment.

On north slopes and on slopes over 30%, where pinyon and juniper dominate the vegetation, ground cover is limited, making these areas more susceptible to erosion.

Limited and scattered amounts of microbiotic crusts are found across the forest. The extent to which they exist on the Roberts Park Allotment is limited in quantity. Specific locations across the allotment are not fully identified. These crusts can be a key component in helping to hold the soils in place and prevent erosion. The crusts also aid in increasing the available nitrogen, as well as other nutrients, in the soil. Studies have shown that these crusts are susceptible to trampling by humans and livestock. Recovery from such disturbances is often a slow process.

Effects Common to all Alternatives

Poor watershed conditions will persist in some areas of the allotment for many years, regardless of management, due to woody plant invasion. As the density of the woody plants increase the vegetative ground cover in the understory will decline due to the competition for light and soil moisture and nutrients. Soil erosion, decreased infiltration, and increased run-off will continue to indirectly affect the stream channels and riparian areas within the Roberts Park Allotment for many years. The roads within the allotment would remain the same. With this analysis there is no plan to manage the roads. Arid environments are very sensitive to impacts and slow to recover (Leopold 1946). Even with progressive changes in management, it may take several years or even decades to see some reversal of resource conditions.

Alternative 1 (No Action)

Direct/Indirect Effects – No direct or indirect effects would occur from livestock, as there would be no permitted grazing on the allotment. This alternative proposes to remove the least amount of vegetation, retain the most litter and provide the least trampling on upland sites. There would be a low risk of exceeding allowable use levels since there would be use only by wildlife. Wildlife grazing would continue and use may increase if competition with livestock is removed, however limited populations exist within or adjacent to the allotment. The lack of stocking is predicted to improve watershed condition on all key areas over the next ten years by reducing the amount of forage removed and, therefore, retaining additional litter. Forage plants in the uplands would retain several years' growth as a standing crop of litter. This would provide additional cover to protect soil and help to prevent erosion. The No Action alternative would improve riparian conditions in Vigil Canyon by decreasing the quantity of herbaceous and woody forage consumed by livestock. Herbaceous understory within the riparian corridors will increase, as well as stream bank vegetation, and the density and diversity of riparian species. These increases, however, are directly contingent to an available water supply in the system. Current drought conditions in the Southwest may be a limiting factor for riparian recovery. An upward trend in riparian condition is expected in the San Francisco River, Vigil Spring, and Vigil Canyon. Channel morphology will continue to improve in both the San Francisco River and Vigil Canyon, however more slowly than vegetative conditions. This is attributed to limited water flows in intermittent or ephemeral drainages that impede floodplain building and inhibit rapid and robust recovery of vegetative species. Recovery rates for individual stream channels and riparian areas will vary depending on existing condition, and availability of water, sediment and native plants.

Over time, in the uplands, ground cover should increase (with the exception of reductions taking place due to closing overstory canopy), and soil compaction should start to break up, thus allowing for increased water infiltration and a reduction in surface runoff.

Compaction to the soils, related to historic grazing activities, may take many years to break up due to the dry/hot conditions and lack of freeze thaw action. Although limited in quantity, microbiotic crusts will improve, helping to increase the available nitrogen, as well as other nutrients in the soil. Reduction of soil compaction and improved soil infiltration should reduce the likelihood of soil movement during runoff events and ultimately moving into downstream channels. Reduced soil loss, increased soil infiltration, and improved soil

organic material cycling would also improve overall soil productivity. Improvement in vegetative ground cover can be limited due to the continued increase of woody tree and shrub species, especially in the pinyon-juniper woodlands.

Stable soils are expected to remain stable under this alternative, impaired soils should exhibit a slow upward trend, and unstable soils will likely remain static. Site potential will remain a key factor in vegetative recovery and subsequent soil improvement.

This alternative provides the highest rate of upward trend and would likely result in the best watershed conditions over the next ten years.

Alternative 2 (Proposed Action)

Direct and Indirect Effects – Under this alternative the permitted stocking rate would be reduced from the current permit. Yearlong grazing, as is proposed in this alternative, has not been implemented on the Robert's Park Allotment in over 20 years (with the exception of 2004). Therefore, there is a degree of uncertainty as to how watershed and soil conditions will respond to yearlong stocking.

Initial stocking is proposed to start under the estimated capacities for yearlong grazing. Any increases in stocking rates are contingent on consistent upward trends observed in range conditions. With light to conservative use (0-30%) prescribed on herbaceous forage and a lighter stocking rate, a decrease in forage removal and an increase in vegetative ground cover are expected. A stable to upward trend in watershed condition is expected with forage density and plant biomass being maintained and/or increased across the allotment.

Livestock grazing will be limited on the riparian habitat in Vigil Spring (20% allowable use) and excluded from the San Francisco River, allowing good recovery on these riparian systems. With the implementation of this alternative, the San Francisco River will see effects similar to those described in Alternative 1. Vigil Spring will continue to show an increase in herbaceous understory within the riparian corridor. This is contingent on available water supply. Vigil Canyon will likely remain static. Fires, drought and high runoff events will continue to influence riparian condition.

Expected increases in vegetative ground cover will aid in the slow process of site condition reversal where soil loss is currently above tolerance (53% of allotment, see Table 1). Areas with slopes greater than 40%, or those areas with shrink/swell soils, are not expected to show improvement, due to low site potential. Lower stocking rates are expected to decrease soil compaction caused by trampling. Some soil compaction, and subsequent reduction in infiltration rates would continue, in particular, near watering sites. Similar to Alternative 1, stable soils are expected to remain stable under this alternative, impaired soils should exhibit a slight upward trend with an increase in vegetative ground cover, and unstable soils are expected to remain static. Expected cattle use on steep slopes is low, with the proposed utilization rates of 0-30%. Although limited in quantity, microbiotic crusts should improve with the proposed utilization rates and light stocking levels, although at a slower rate than Alternative 1.

Planned monitoring of utilization levels, and subsequent movement of livestock when these levels are met, is expected to protect watershed and soil resources, and aid in the maintenance and/or improvement of satisfactory watershed conditions. As range condition

improves and vegetative ground cover increases, localized areas of unsatisfactory watershed condition are also expected to improve. Implementation of established mitigation measures, proper livestock distribution, and response to drought conditions will remain critical to watershed, soil and riparian improvement.

While this alternative does not provide as much relief from grazing pressure as Alternative 1, no significant negative watershed and soil effects are anticipated from implementation of Alternative 2.

As yearlong grazing has only been implemented one year (2004), there has not been adequate time or monitoring to validate the expected impacts of implementing this alternative.

Alternative 3

Direct/Indirect Effects –This alternative provides a variable stocking rate, yearlong, ranging from 217 to 321 Animal Units plus 8 horses. The initial stocking rate will be at 316 Animal Units, which includes eight head of horses. As this allotment has not been grazed yearlong for the last 20 years (with the exception of 2004), there is no monitoring data to validate how watershed and soil conditions will respond to yearlong stocking. Therefore, there is a degree of uncertainty as to whether the proposed initial yearlong stocking level would be able to maintain and/or improve watershed and soil conditions.

The flexibility of this alternative does provide for a reduction in livestock numbers if utilization occurs over 35%. This provides somewhat of a safeguard that if overuse of vegetation is observed, then action will be taken to correct it. During initial stocking, it is anticipated that current vegetative ground cover will be maintained, or stocking will be reduced accordingly. With the aforementioned uncertainty in watershed response, there is no confidence in predicting any increases in vegetative ground cover until monitoring validates that maintenance, or improvement, has occurred with proposed stocking levels.

Additionally, this alternative provides the permittee with the opportunity to pursue grazing of annual weeds in years when they are abundant, provided utilization standards have not been met or exceeded. A watershed concern arises with this type of management, as often, an abundance of annual weeds (including *filaree*) may likely be growing where bare soil occurs. An abundance of annual weeds may suggest a lack of perennial grasses with deeper root systems capable of providing more stable ground cover. Annual weeds may be the primary constituents holding soil in place. If this is the case, then removal of these may lead to an increased likelihood of soil loss.

Livestock grazing will be excluded from Vigil Spring area and the San Francisco River. Positive effects to these riparian areas in Robert's Park are expected, similar to those described in Alternative 1. Vigil Canyon will likely remain static.

Impaired soils require an increase in vegetative ground cover to move towards satisfactory condition. With the lack of confidence in an upward trend in vegetative ground cover, due to the uncertainty of watershed response to yearlong stocking and the removal of annual weeds in this alternative, no upward trend is predicted for impaired soils. Similar to Alternatives 1 and 2, areas with slopes greater than 40%, or those areas with shrink/swell soils, are not expected to show improvement, due to low site potential. Stable soils are expected to remain stable provided current vegetative ground cover is maintained, or

stocking levels are adjusted accordingly. Unstable soils are also expected to remain static, similar to Alternatives 1 & 2. Soil compaction, and subsequent reduction in infiltration rates would continue, in particular, near watering sites, at rates higher than Alternative 2, due to higher stocking levels. Expected cattle use on steep slopes is low, with the proposed utilization rates of 35%. The limited quantity of microbiotic crusts found on the allotment is expected to remain the same.

This alternative does not provide as much relief from grazing pressure as do Alternatives 1 and 2. As stocking levels are adjusted with observed utilization levels, it is expected that overall watershed conditions will remain satisfactory. Riparian conditions are expected to improve similar to Alternatives 1 and 2. Soils conditions are expected to remain the same, with 53% of the allotment continuing to have impaired soils. Again, a yearlong grazing has only been implemented one year (2004), there has not been adequate time or monitoring to validate the expected impacts of implementing this alternative.

Alternative 4 (Existing Management)

Direct and Indirect Effects – This alternative is similar to Alternative 3 as the initial stocking rates are proposed to be the same. There is, however, no flexibility in this alternative to raise stocking levels incrementally, in response to observed under use. Stocking could occur for 321 Animal Units plus 8 horses, anytime after the first year of the permit. Similar to Alternatives 2 and 3, there is a degree of uncertainty as to how watershed and soil conditions will respond to yearlong stocking at this stocking level.

Prescribed use levels vary from light to heavy (0-60%, see Range Specialist Report). In areas managed for light use levels, effects are expected to be similar to those described in Alternative 3.

Watershed condition would remain satisfactory, provided vegetative ground cover is maintained, and the cattle are removed once the utilization levels are met. In areas with heavier prescribed use levels, it is expected that vegetative ground cover would not be maintained, thus resulting in an increase in bare soil. Localized unsatisfactory watershed and soil conditions would likely result. Similar to Alternative 3, there is no confidence in predicting any increases in vegetative ground cover due to the uncertainty of watershed response, and the lack of monitoring data associated with yearlong grazing on this allotment.

Livestock grazing will continue to be excluded from Vigil Spring area and the San Francisco River. Positive effects to the riparian areas in Robert's Park are expected, similar to those described in Alternative 1. Vigil Canyon will likely remain static.

Effects to soil conditions are expected to be similar to those described in Alternative 3. With the lack of confidence in upward trend in vegetative ground cover, impaired soils will likely remain static. Similar to Alternatives 1-3, areas with slopes greater than 40%, or those areas with shrink/swell soils, are not expected to show improvement, due to low site potential. Stable soils are expected to remain stable provided utilization levels are observed, and stocking levels are adjusted accordingly. Unstable soils are also expected to remain static, similar to Alternatives 1-3. Soil compaction, and subsequent reduction in infiltration rates would continue, in particular, near watering sites, similar to Alternative 3. In areas with higher allowable use, compaction would be greater. Expected cattle use on

steep slopes is low in areas with light utilization rates, but is likely to be higher in areas where up to 60% use is allowed, due to cattle searching for available forage. The limited quantity of microbiotic crusts found on the allotment is expected to remain the same in lighter use areas, and would likely decline in areas of heavy use.

This alternative does not provide the relief from grazing pressure that is expected with Alternatives 1 and 2. Significant negative impacts on watershed and soil conditions may occur in localized areas, where heavy use is allowed. It lacks the flexibility that Alternative 3 provides where increases or decreases in stocking levels are based on observed utilization levels. In areas with lighter use levels, it is expected that overall watershed conditions will remain satisfactory. Riparian conditions are expected to improve similar to Alternatives 1-3. Soils conditions are expected to remain the same in lighter use areas, and decline in areas with heavier use. Again, as yearlong grazing has not been implemented in the recent past on this allotment, and uncertainty exists in watershed response, it may take two to three years to validate the expected impacts of implementing this alternative.

Summary:

For this project, Alternative 1 provides the greatest recovery of satisfactory watershed conditions, and encourages the most recovery of riparian systems, as upward trends in both the uplands and riparian areas will intertwine to reduce negative impacts. Alternative 2 provides the second greatest recovery of watershed and riparian conditions, as uplands will receive relief with light stocking rates and maintenance of minimum stubble height requirements on key species. Upland impacts will still have some influence on timing and volumes of runoff events. Alternatives 1 and 2 are predicted to result in an upward trend in watershed condition on the allotment, where no measurable off-site sedimentation or increases in water yield would be produced from proposed levels of livestock grazing and management systems. Implementation of Alternative 3 is expected to maintain satisfactory watershed conditions and improve riparian conditions, provided livestock numbers are adjusted according to observed use levels. Soil conditions are expected to remain the same, with no upward trends observed. Alternative 4 is expected to be similar to Alternative 3 in lighter use areas, and has the potential to degrade watershed and soil condition in heavy use areas.

Cumulative Effects:

Cumulative effects of land disturbing activities can occur on-site or downstream of the activity. On-site effects include changes to soil characteristics from multiple activities such as ungulate grazing, use of heavy equipment, or unrestricted off-highway vehicle use. Downstream effects may include changes in amount and timing of overland and concentrated water flow and input of sediment.

No long-term negative effects to soil productivity, water quality or quantity, or riparian condition are expected with the implementation of Alternatives 1 or 2, with the implementation of Best Management Practices (see Whitewater-San Francisco River 5th Code Watershed, Cumulative Effects Report – Project Record). Alternatives 1 and 2 will likely succeed at contributing toward an upward trend in watershed condition. Alternative 3 will likely maintain current watershed and soil condition. Alternative 4 will maintain watershed and soil conditions at lower use levels and has a high risk of degrading resources at high use levels, thus contributing to negative cumulative effects.

in the watershed. Currently, the Whitewater-San Francisco River 5th code watershed is not experiencing adverse cumulative watershed effects within the watershed for the areas managed by the Gila National Forest. There does exist several localized areas at high risk for current and/or future resource degradation without attention to Best Management Practices. Water quality issues continue to be a concern in the watershed for stream reaches that have designated or occupied habitat for threatened, endangered, and/or sensitive species. All stream reaches assessed by the state are currently in full support of state water quality standards. Allotment management plans on lands administered by the Forest are scheduled to be completed over the next 12 years that will result in an adjustment of cattle numbers to less than or equal to estimated capacity on the remaining allotments on the Gila National Forest.

Air: Air quality across the Gila National Forest is currently impacted by emission generating smelters established south, southwest and west of the project area, the directions from which the winds blow during most of the year. These smelters are large sources of sulfur dioxide and particulates. There are also several coal-fired power plants located in the same upwind areas. These power plants emit sulfur dioxide, nitrogen oxides and particulates. Four very large power plants are situated north and north-northwest of the project area that may affect air quality during period in which winds are from those directions, primarily during the winter season (Blankenship 1990b). Currently, the Air Quality Bureau of the New Mexico Environment Department has not designated any airsheds in or around the Gila National Forest as being in non-attainment of National Ambient Air Quality Standards. For established Air Quality Related Values (Blankenship, 1990a), the Gila Wilderness Area Class I airshed is certified for visibility impairment due to regional haze.

No direct issues were raised on impacts to air quality as a result of implementing these alternatives. The project is approximately 20 miles west of the Gila Wilderness Class I airshed. The project area is not within a recognized area of non-attainment for Particulate Matter-10, carbon monoxide, sulfur dioxide, ozone, or total suspended particulates, therefore, no analysis is necessary or provided to determine conformity with State Implementation Plan for Air Quality. Any dust generated by livestock activities is expected to stay within the analysis area, as fugitive dust settles out relatively quickly. The expected overall impacts are negligible, as the source is limited to short-term pulses.

Cumulative Effects: Industries and human presence (recreation use) would continue to affect the airsheds in the analysis area, but the effects under the control of the Forest Service would not be significant and would be within NMED standards. Potential wildfires within the Roberts Park Allotment area and areas immediately adjacent may have some significant short-term detrimental effects on the airsheds. Individually and cumulatively, none of the four alternatives considered in detail will have any measurable effect on air quality.

Plants, including Threatened and Endangered Species and Region 3 Sensitive Species

There are no federally threatened, endangered, or proposed plant species known to occur within or adjacent to the allotment. There are eleven Region 3 Sensitive Species plants that occur in Catron County, but none are known to occur on the allotment. If in the future plant

surveys document the occurrence of one of these species or any listed species, management will be developed to protect the population.

Noxious Weeds: No populations of noxious weeds have been identified on the allotment or on allotments adjacent to this allotment. Noxious weeds are known to invade areas of disturbed soils, like areas of livestock concentration (e.g. around waters, trails, gathering points); or overgrazed areas where vegetation health is weakened and plant density is decreased that allows the spread. Light to moderate grazing levels, within allowable use guidelines, minimizes soil disturbance, maintains a healthy native plant community and safeguards against invasion by noxious weeds.

Currently, there are no noxious weed sources identified within or adjacent to the allotment, therefore for all alternatives there is currently no risk of spread of noxious weeds. If in the future, populations of noxious weeds are detected, management will be developed to address the issue.

Wildlife, including Threatened and Endangered Species, Region 3 Sensitive Species, Migratory Birds, and Management Indicator Species

Threatened and Endangered Species

The status of federally listed species and determination by alternative located within or near the project area is outlined in the following table.

Species	Status	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Bald eagle	Threatened	NE	NE	NE	NE
Chiricahua leopard frog	Proposed Threatened	NE	MANLAA	MANLAA	MANLAA
Jaguar	Endangered	NE	NE	NE	NE
Loach minnow	Threatened	NE	MANLAA	MANLAA	MALAA
Critical Habitat		NE	MANLAA	MANLAA	MALAA
Mexican gray wolf	Experimental	NE	NLJ	NLJ	NLJ
Mexican spotted owl	Threatened	NE	NE	NE	NE
Critical Habitat		NE	NE	NE	NE
Southwestern willow flycatcher	Endangered	NE	NE	NE	NE
Spikedace	Threatened	NE	NE	NE	NE
Critical Habitat		NE	MANLAA	MANLAA	MALAA

NE = No Effect; MANLAA = May Affect, but Not Likely to Adversely Affect; MALAA – May Affect, Likely to Adversely Affect; NLJ = Not Likely to Jeopardize

Summary of alternative effects by species:

- Bald eagle – The San Francisco River and Vigil Canyon within and near the allotment are wintering habitat for bald eagles. No nests or winter roosting trees have been identified on the Forest that are within 0.25 miles from the allotment. Therefore, livestock management activities will not have an impact on nesting or roosting habitat. The entire allotment, particularly the San Francisco River, is used for foraging habitat in the winter by bald eagles. Since the river is being excluded in all alternatives, and range condition is predicted to remain the same or improve under all alternatives, there would be no effect on bald eagle foraging. Transient bald eagles

may be seen passing through the allotment or found feeding within the allotment, but more likely the bald eagles will travel and forage along the river. For all alternatives, there would be a no effect determination for bald eagles.

- Chiricahua leopard frog – The Chiricahua leopard frog is known to occur within the San Francisco River upstream and downstream of the allotment. But no frogs have been found during surveys of the stock tanks and the portion of the San Francisco River associated with the allotment. With no known sites occupied and the exclusion the San Francisco River, there would be no direct impacts on the frogs in all alternatives. There would be no direct or indirect effects resulting from grazing in Alternative 1, therefore the determination is no effect. In alternatives 2, 3, and 4 indirect and cumulative effects are not expected to increase sediment delivery to watercourses significantly, leading to a determination of may affect, not likely to adversely affect.
- Jaguar – The isolated mountain ranges of southeastern Arizona and southwestern New Mexico are considered the northern end of the range for this species, which more common in the mountains of Mexico. There have been no confirmed sightings of jaguars on the Gila National Forest in the last 40 years. Therefore, there would be a no effect determination for the jaguar for all alternatives.
- Loach minnow and its critical habitat -- Propst et al (1986) reported the current distribution of loach minnows to include a reach on the San Francisco River between the confluence of Mineral Creek downstream to the San Francisco Hot Springs. There is 2.5 miles of the river that flows through the allotment that is within the area of fish distribution. The San Francisco River is designated critical habitat for loach minnow. Annual monitoring of fish assemblages near the Glenwood Ranger Station since 1988 has continually detected loach minnow, except in 2000 due to high flows precluding sampling. The San Francisco River was fenced in 1999 and riparian conditions have been improving along the river due to the decreased pressure.

Loach minnows prefer habitats that are characterized by shallow, swift waters that flow over gravel, cobble, and rubble substrates. They are rare or absent from habitats where fine sediments fill the interstitial spaces. Of the various sources of impacts that can affect aquatic species, the various potential and actual sediment sources away from the active stream channel and floodplain have the greatest indirect influence on aquatic species. Based on the expected range, watershed and soils effects described in this document the following determinations on effects to loach minnow and its designated critical habitat are:

- Alternative 1 – No Effect – There will no direct impacts to the stream channel from livestock, since livestock grazing would not be permitted. Watershed and range conditions would improve resulting in increased ground cover and less sediment movement reducing indirect effects to loach minnow and its habitat. Overall, the stream and riparian conditions would continue to improve.
- Alternative 2 – May Affect, Not Likely to Adversely Affect – Livestock grazing would continue, but at a light to conservative use level (0-30%) and at a light stocking rate. This alternative does not provide as much relief from

grazing impacts on the watershed, soils, and range as Alternative 1, but more than Alternative 3 and 4. Range, watershed, and soil conditions are expected to improve resulting in increased ground cover and less sediment movement, but at a slower rate than Alternative 1. As a result, stream and riparian conditions would continue to improve, though some minor, though insignificant sedimentation resulting from grazing in the uplands could affect fish habitat..

- Alternative 3 – May Affect, Not Likely to Adversely Affect – Livestock grazing would continue, but at a conservative use level of 35%. Range conditions would improve, but with soil conditions remaining the same, sediment movement resulting from livestock grazing would not change. . As a result, stream and riparian conditions would continue to improve, though some minor, though insignificant sedimentation resulting from grazing in the uplands could affect fish habitat..
- Alternative 4 – May Affect, Likely to Adversely Affect – Livestock grazing would continue, but at a light to heavy use level (0-60%). Soil conditions are expected to remain the same in the lighter use areas, but are expected to deline in areas with heavier use, resulting in an increase of soil movement and sedimentation to the streams. The higher sediment levels and peak flows would cause negative effects to the loach minnow and designated loach minnow critical habitat. Alternative 4 would not reduce the level of effects to an insignificant or discountable level.
- Mexican gray wolf – Re-introductions of wolves have occurred in the Blue Primitive Area on Apache-Sitgreaves National Forest in Arizona and entered the Gila National Forest north of the allotment and were relocated on the Gila Wilderness. The re-introduction population is listed as a non-essential experimental population. There have been no recent sightings of wolves on the allotment. Transient wolves may occasionally pass through the allotment, but no territories have been established on the allotment to date. Alternative 1 would have a no effect determination based on no livestock being present on the allotment.

Looking at cumulative effects of all land disturbing activities including livestock grazing; road density, recreational use facilitated by existing roads, and hunting are activities that may have most cumulative impacts on wolves. Hunting may alter distribution of game species, which would affect the prey base of the wolves and their distribution. This re-distribution of games species, disturbance by recreational use, and road density can have an affect on the wolf depending on the intensity and duration of these activities. Based on the fact that no wolves are known to occupy this area and intensity and duration of cumulative effects on the population are not significant, there would be a not likely to jeopardize determination for Alternatives 2, 3, and 4.

- Mexican spotted owl – There are no Protected Activity Centers (PACs), no protected habitat as defined in the Recovery Plan (U.S. Fish and Wildlife Service 1995), and no proposed critical habitat for the Mexican spotted owl on the allotment-. The mid-seral ponderosa pine habitat does not haven an adequate oak component to be

considered restricted habitat, and the riparian areas on the San Francisco River have no continuous canopy or over story. With no PACs, restricted, protected, or proposed critical habitat present on the allotment, there would be a no effect determination for Mexican spotted owl for all alternatives.

- Southwestern willow flycatcher – Historical records indicate Southwestern willow flycatchers have occurred on the San Francisco River, downstream of the Roberts Park Allotment, near the San Francisco Hot Springs. Recent surveys (2000, 2001, and 2004) have not detected any flycatchers along the San Francisco River. Adjacent to the allotment, there is currently no suitable habitat. Livestock have been excluded for several years, but there does not appear to be any marked improvement in the amount of woody vegetation. Improvement may take much more time to see a change. With no suitable habitat and lack of detection, there would be a no effect determination for Southwestern willow flycatcher for all alternatives.
- Spikedace - and its critical habitat – The Fishes of New Mexico (Sublette et al, 1990) reported that spikedace have been extirpated from the San Francisco River, however spikedace critical habitat has been designated on the San Francisco River from the New Mexico/Arizona state line upstream to Tularosa Creek. There is 2.5 miles of the river that is designated critical habitat that flows through the allotment. The San Francisco River was fenced in 1999 and riparian conditions have been improving along the river due to the decreased pressure.

Spikedace occupy mid-water habitats that are waters that are generally less than 3 ft. in depth. Adults often aggregate inshear zones along gravel-sand bars, quiet eddies on the downstream edges of riffles, and broad shallow areas above gravel-sand bars (Rinne and Minckly, 1991). Smaller, younger fish are found in quiet water along pool margins over silt or fin-grained sand. Of the various sources of impacts that can affect aquatic species, the various potential and actual sediment sources away from the active stream channel and floodplain have the greatest indirect influence on aquatic species. Based on the expected range, watershed and soils effects described in this document the following determinations on effects to spikedace and its designated critical habitat are:

Direct and indirect effects to the species would not occur in any of the alternatives as the habitat is not occupied.

Direct and indirect effects to the designated critical habitat:

- Alternative 1 - Should Alternative 1 be implemented, the entire allotment would be rested over the next 10 years period of time. Vegetative trend would improve at a natural rate. No direct or indirect affect would occur to watershed condition. Since no grazing is being proposed under this alternative, there would be no indirect effects to spikedace critical habitat from the implementation of Alternative 1. A finding of “No Effect” is made for Alternative 1. Alternative 1 would be the most preferable for spikedace critical habitat, followed in decreasing order of preference by Alternative 2, 3, and 4.

- Alternative 2 - Spikedace have evolved with both naturally occurring high runoff events and the transport of sediment through the system. It is the unnaturally high levels of fine sediments and changes in the flow regimes that constitute a problem by lowering the overall habitat capability. Anticipated improvements in range, soil and watershed conditions are expected to continue to improve conditions for spikedace critical habitat located on and downstream of the allotment. Sediment movement resulting from livestock grazing should be reduced under this alternative. Flows into spikedace habitat should move toward a more natural regime. Water column, channel, stream bank and riparian conditions that help support instream habitat parameters should improve or at the very least be maintained under this alternative. Alternative 2 reduces the level of effect to spikedace critical habitat to an insignificant and discountable level. Grazing under this alternative is not likely to adversely affect spikedace designated critical habitat. The effects determination for spikedace critical habitat under this alternative is a “May Affect, Not Likely to Adversely Affect.”
- Alternative 3 - Under this alternative the range specialist has predicted an overall improvement of range condition, and the watershed specialist has predicted an improvement in riparian condition. The watershed specialist has also predicted, with a degree of uncertainty until monitoring validates, soils conditions to remain the same, and the watershed conditions to remain in satisfactory condition. Because soils conditions are expected to remain the same and watershed condition are expected to remain in satisfactory condition sediment movement resulting from livestock grazing should be similar to current levels. Flows coming off the allotment should also remain the same as current levels.

Monitoring and the timely correction of stocking levels to ensure the maintenance of stated utilization standards is key to ensuring enough ground cover remains on the allotment so that sediment and flow levels are not increased under this alternative. Water column, channel, stream bank and riparian conditions that help support instream habitat parameters for spikedace critical habitat should, at the least, be maintained under this alternative with the achievement of the stated grazing standards. With the achievement of the stated grazing standards under this alternative the level of effect to spikedace critical habitat would be insignificant and discountable. The effects determination for spikedace critical habitat under this alternative is a “May Affect, Not Likely to Adversely Affect.”

This alternative does not provide as much relief from grazing pressure as do Alternatives 1 and 2, therefore it has less of a chance of improving spikedace critical habitat.

- Alternative 4 - Declining soil and watershed conditions on portions of the allotment under this alternative would cause the movement of more sediment and would increase runoff/peak flows into designated spikedace critical habitat. Elevated sediment levels alter macroinvertebrate communities; increase embeddedness; alter pool, riffle, run, and back water ratios; alter flow

regimes; and alter larval, juvenile, and adult instream habitat parameters necessary to sustain the spikedece. Increased runoff can adversely affect designated critical habitat by causing more sediment to move off the uplands and into the river; cause the erosion of stream banks; change the timing and magnitude of streamflow; increase stream width and decrease stream depth; cause a reduction in stream bank vegetation; and affect temperature and nutrient levels. Spikedece have evolved with both naturally occurring high runoff events and the transport of sediment through the system. It is the unnaturally high levels of fine sediments and changes in the flow regimes that constitute a problem by lowering the overall habitat capability.

Higher sediment levels and peak flows would cause negative effects to designated spikedece critical habitat. Because livestock grazing under Alternative 4 would not reduce the level of effect to an insignificant or discountable level, grazing under these alternatives is likely to adversely affect designated spikedece critical habitat. The effects determination for spikedece critical habitat under this alternative is a “May Affect, Likely to Adversely Affect.”

Cumulative Effects

Cumulative effects of livestock grazing on other allotments within the Whitewater-San Francisco 5th Code Watershed were analyzed by Koury and Souders (2004b). Their analysis found that permitted use is currently at or below capacity on most allotments in the watershed, and that Gila National Forest grazing decisions to date have incorporated Best Management Practices (BMPs) to implement Clean Water Act requirements. They point out that authorized use is currently running at approximately 65% of permitted numbers, largely due to the effects of drought. Due to the satisfactory condition of the Whitewater-San Francisco 5th Code Watershed, the implementation of BMPs in recent decisions, and the fact that permitted use is mostly at or below capacity on most allotments in the watershed, the cumulative effects of grazing on spikedece habitat within the Whitewater-San Francisco watershed is anticipated to insignificant.

Cumulative effects from maintenance of the road system, especially drainage structures associated with the roads, would have a negligible impact on soils and watershed conditions. Road densities on the allotment are >1 mile/square mile. Sediment delivery to riparian/aquatic habitats from maintained roads would be insignificant and discountable, so there would be no additional impacts to riparian/aquatic species considered in this assessment. Road maintenance is an on-going activity of short duration in a confined area; no increases in the frequency or magnitude of these activities is anticipated. Use of roads would not increase as a direct consequence of the proposed action, but may increase over time as visitor use increases due to increasing populations within Arizona and New Mexico. The specific impacts of increased visitor use and traffic is the creation of non-system, unimproved roads. These roads may affect water drainage, and vegetation on roads is removed and this can lead to soil loss and downstream sedimentation (Koury and Souders 2004b). However, closure of unneeded roads and maintenance of roads in poor condition are goals of Gila National Forest. Because the Whitewater-San Francisco

watershed is in satisfactory condition, the cumulative effects of roads within the watershed are expected to be insignificant.

Region 3 Sensitive Species

There are eight Region 3 Sensitive Species that are present or potentially present within or adjacent to the allotment.

Species	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Bell's vireo	No Impact	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Yellow-billed cuckoo	No Impact	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Roundtail chub	No Impact	No Impact	No Impact	No Impact
Narrow-headed garter snake	No Impacts	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Southwestern toad	No Impacts	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Spotted bat	No Impact	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Allen's lappet-browed bat	No Impact	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing
Townsend's big-eared bat	No Impact	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing	May affect individuals, but would not lead toward federal listing

- Bell's vireo – Suitable habitat for the Bell's vireo may exist along the San Francisco River within the allotment, in the same vicinity where yellow-billed cuckoos were detected. They have not been detected in surveys for riparian birds.
- Yellow-billed cuckoo – This species occurs in riparian areas long the San Francisco River. In 2002, cuckoos were detected at the San Francisco Hot Springs and at the confluence of Big Dry Creek and the San Francisco River (Woodward et al. 2002). Both of these areas are more than 5 miles downstream from the allotment. In 2004, a cuckoo was detected near the Alma Bridge on the Robert Park Allotment by southwestern willow flycatcher survey crews (K. Brodhead, personal communication).

Bell's vireo and yellow-billed cuckoo occupy the same type of habitat and are analyzed for effects together:

Alternative 1 – There would be no direct, indirect, or cumulative effects on individuals of these species since no livestock grazing would be permitted. Riparian and stream conditions would continue to improve. A finding of "No Impact" is made for these species.

Alternative 2, 3, and 4 – Bell’s vireo and yellow-bellied cuckoo are riparian dependent species. The maintenance and improvement of riparian and stream conditions is important in maintaining nesting and foraging habitat. Livestock are being excluded from the San Francisco River in all alternatives, therefore there would be no direct impacts to riparian habitats. Allotment watershed conditions are expected to be maintained or improved at varying rates in all alternatives, but would still lead towards improved riparian conditions. The amount of upland disturbances is considered to be an insignificant indirect effect, and would not retard riparian improvement. Looking at cumulative effects of all land management activities on the watershed; roads, especially the creation of non-system, unimproved roads which often have poor drainage or cross channels in inappropriate locations, have the most influence on watershed conditions. These can increase sedimentation to stream channels affecting stream and riparian habitat. There are efforts working on maintenance and closure of unneeded roads, which reduces the impacts, therefore the cumulative effects for the watershed is expected to be insignificant. Based on the effects, a determination of “may affect individuals, but would not lead toward a trend of federal listing” is made for these two bird species.

- Roundtail chub – “Fishes of New Mexico” (Sublette et al. 1990) reports that the roundtail chub has been extirpated from the San Francisco River, so this species does not occur in or downstream of the project area. The implementation of Alternatives 1, 2, 3, or 4 would have no direct, indirect, or cumulative effects on individuals of this species. A finding of “No Impact” is made for all alternatives.
- Narrow-headed garter snake – This species is known to occur on the San Francisco River from Pleasanton north into the Tularosa River. This snake is very aquatic, and inhabits riparian areas. It prefers habitats with rapid water, living and hunting in the gaps between piles of rocks (from head-size to boulders). (Walls) It is assumed that the narrow-headed garter snake occupies the San Francisco River where it borders the allotment.
- Southwestern toad – This species is known to occur along the San Francisco River near the San Francisco Hot Springs. It inhabits arroyos, streams bordered by willow and cottonwoods, washes and adjacent uplands. Breeding habitat consists of shallow, quiet waters among gravel, leaves, sticks, mud or clean sand. It is assumed that the southwestern toad occupies the San Francisco River where it borders the allotment.

Narrow-headed garter snake and southwestern toad occupy the same stream systems and similar habitats and are analyzed for effects together: The most significant effects would occur from increased sedimentation that could alter the stream flow, breeding habitat for the toad, and riffle habitat used by the narrow-headed garter snake and its prey.

Summary and effect determination: Alternative 1 would not effect the Southwestern toad or Narrow-headed garter snake. Under Alternatives 2, 3, or 4, livestock would be excluded from occupied habitat, and no direct effects to the Southwestern toad or Narrow-headed garter snake would occur. The indirect

effects, including increased sedimentation associated with implementation of these alternatives, would be insignificant. Sedimentation levels from the various cumulative activities, including roads, road maintenance, and user created roads in the watershed would also be insignificant. As a result, the implementation of alternatives 2, 3, or 4 may affect individuals of both species, but would not cause a trend towards future listing.

- Spotted bat, Allen's lappet-eared bat, and Townsend's big-eared bat – All three bat species roost in caves and cliffs, although Allen's lappet-eared bat uses exfoliating bark on snags and Townsend's big-eared bat may roost in hollow trees. All three species feed predominately on moths and forage in riparian areas, forested openings, woodlands, and meadows. Roosting habitat is fairly limited, although some rock faces may serve as roosts for the spotted bat. Townsend's big-eared bat travel large distances while foraging, so have the potential to forage on the allotment.

Alternative 1 – there would be no direct, indirect or cumulative effects on the three bat species since there would be no livestock grazing or management activities to affect vegetation associated with their forage. A determination of "No Impact" is made for this alternative.

Alternatives 2, 3, and 4 – in Alternatives 2, 3, and 4 riparian conditions would improve. Range conditions would improve allotment wide in alternatives 2 and 3, but there will be areas in Alternative 4 that would not based on proposed prescription. But overall, vegetation associated with the bats' forage would be maintained or improved. Looking at the cumulative effects of all land disturbing activities including livestock grazing; fuelwood cutting and gathering and harvesting of dead trees may have the most impact on bat species. However, the guidelines for dead standing tree removal for fuelwood and harvesting limit activities near stream channels and maintain a varying number of snags (dead trees) per acre depending on vegetation type and the low demand in the area together maintain adequate habitat for these bat species. There may be effects in isolated areas, but they are not expected to be significant. A determination of "may affect individuals, but would not lead toward a trend of federal listing" is made for these three bat species for Alternatives 2, 3, and 4.

Migratory Birds

Based on the wooded vegetation types located within the allotment, 16 migratory bird species were identified that may occur within the project area. Two of these species are federally listed (Mexican spotted owl and southwestern willow flycatcher) and one is a Region 3 Sensitive Species (Yellow-billed cuckoo) and are discussed in the Threatened and Endangered Species and Region 3 Sensitive Species sections of this document. For the remainder of the bird species, there is either no suitable habitat or there are no anticipated impacts to the associated habitat, nor disturbance effects to the species. This outlined in the following table.

Species	Habitat Impacts	Disturbance Effects
Ponderosa Pine Vegetation Type		
Northern goshawk	No suitable habitat on allotment	No suitable habitat on allotment
Greater peewee		
Flammulated owl	None anticipated	None anticipated.
Olive warbler		
Grace’s warbler		
Ponderosa Pine/Pinyon-Juniper Woodland Vegetation Type		
Virginia’s warbler	None anticipated.	None anticipated
Pinyon-Juniper Woodland Vegetation Type		
Ferruginous hawk	None anticipated	None anticipated
Gray flycatcher		
Gray vireo		
Black-throated gray warbler		
Mid-Elevation Riparian Vegetation Type		
Lewis’ woodpecker	No suitable habitat on allotment	No suitable habitat on allotment. These species are not anticipated to occur.
Lucy’s warbler		
Summer tanager		

Important Bird Areas and over-wintering habitat are important to migratory birds. There are no Important Bird Areas (IBAs) or over-wintering habitat within or adjacent to the project area. The nearest IBA is the Gila Bird Management Area, located more than 20 miles away. There is no association or important links between the bird communities on the allotment and the Gila Bird Management Area.

Looking at cumulative effects of all land disturbing activities including livestock grazing; fuelwood cutting and gathering, especially in the ponderosa pine and pinyon-juniper woodland habitat types may have the most cumulative effects on migratory birds found within these habitat types. However, harvest is limited to standing dead juniper and this activity is light on the allotment. The remaining live juniper would continue to provide foraging and habitat for migratory birds. The amount of harvest of standing dead juniper is insignificant to what is remaining in the stands.

There will be no significant effects to migratory birds as a result of any of the alternatives.

Management Indicator Species

The Gila FLMP (adopted in 1986) identified 26 Management Indicator Species to help reflect the effects of management activities on specific habitats and to represent these effects for a number of other species with similar or related habitat requirements. Roberts Park Allotment was evaluated and identified the following habitats to occur on the allotment:

grassland, pinyon/juniper woodland, ponderosa pine, and mid-elevation riparian habitats. Species associated with these habitat types (displayed in the following table) are: elk, mule deer, Abert squirrel, blacktail jackrabbit, beaver, turkey, Mearns quail, horned lark, plain titmouse, and common flicker, which are evaluated in this assessment. Pronghorn antelope is an indicator species of grassland habitats, but pronghorn antelope have not been found within or near the allotment, so will not be considered for further analysis.

Management Indicator Species, and associated vegetation and seral stages, analyzed for the Roberts Park allotment.

Species	Grassland	P/J Woodland	Ponderosa Pine	Mid Elevation Riparian
Elk		(M)	M	(M)
Mule deer		M	(M)	(M)
Abert squirrel			H-M	
Black-tail jackrabbit	(L)	L		
Beaver				M
Turkey		(M)	H-M	(M)
Horned lark	L			
Mearns quail	H	H-M		
Plain titmouse		H-M		
Common flicker		H		

Effects by Alternative:

Direct and Indirect Effects: The predicted effects of the alternatives on the vegetation types were obtained from Holloway (2004) and Koury and Souders (2004a). A summary of the predicted effects on vegetation types is given in Table 4.

Grassland would remain unaffected by the implementation of any alternative. Although range condition under all alternatives would maintain stable or exhibit upward trends, no change in range condition class is anticipated as a result of implementation of any alternative except at C1 (Holloway, 2004). This cluster is at the high end of “fair” condition class, and could move to “good” under alternatives 1, 2, and 3. However, the cluster is in pinyon/juniper woodland, and this change in condition class would not result in an increase in late seral grassland. Elsewhere, since it is assumed that condition class equates with seral stage, no change in the amount of grassland or grassland seral condition is anticipated with implementation of any alternative.

Pinyon/juniper woodland would remain unaffected by the implementation of any alternative. As for grassland, no change in range condition class is predicted for any alternative except at C1 (Holloway, 2004). Although seral stages of pinyon/juniper are determined indirectly from range condition class, no change in the amount of woodland or woodland seral condition is anticipated with implementation of any alternative. In reality,

there will be minor changes in seral condition due to succession, as evidenced by the potential change at C1; however, these changes are anticipated to be relatively minor under any alternative due to the slow succession of pinyon/juniper woodlands.

Ponderosa pine, as a vegetation type, is unaffected by livestock grazing. Livestock use within pine “stringers” would have little or no effect on tree growth and succession to later seral stages. Because the time frame for the permit is short (10 years) in relation to forest succession, no change in the amount of ponderosa pine vegetation or seral stages is anticipated as a result of the implementation of any alternative.

Riparian vegetation is predicted to improve under all of the alternatives (Koury and Souders 2004a). This means there would be a potential change in riparian seral stage from mid-seral to late-seral with the implementation of any alternative. Vigil Canyon is expected to remain static, and not all areas may have the potential to achieve a true late-seral riparian gallery forest. In general it can be assumed that there would be a decline in the amount of mid-seral riparian habitat. This would result in some reduction in primary habitat for beaver, and some reductions in secondary habitat for elk, mule deer, and turkey. Due to the small acres involved (at most 52 acres, and probably less with the static trend in Vigil Canyon), it is unlikely that this would result in changes in the observed forest-wide trends for these species.

Cumulative effects: A full summary of cumulative effects for the Whitewater/San Francisco 5th Code watershed is given in Koury and Souders (2004b). This analysis focuses on those cumulative actions which may impact habitat types on the Roberts Park allotment, and hence may affect forest-wide population and trend of Management Indicator Species.

Wild and Prescribed Natural Fire: Fire frequency within the Roberts Park allotment is low due to the predominance of pinyon/juniper woodland. Fire starts are usually small, and are either used as prescribed natural fire or, if adjacent to populated areas, are suppressed. Ponderosa pine stringers in the western portions of the allotment are more vulnerable to fire, and fires may be more severe and more frequent. Recent literature (Baker and Shinneman 2004) suggests that the frequency of severe (i.e., stand replacing) fire in pinyon-juniper habitat types may be low (on the order of 400 to 480 years), and has not increased in the post settlement period. Although the authors conclude that data is lacking to reach a firm conclusion, fires within pinyon/juniper woodland on the Glenwood Ranger District have not typically spread over large acres. Fires in the West Glenwood Fire Use Area (which includes the Roberts Park allotment) are typically converted to “fire-use” fires (i.e. prescribed natural fires) unless they threaten structures or facilities. According to Baker and Shinneman (2004), low-intensity spreading fires are more common in ecotones with ponderosa pine or sage brush. They estimate that the mean fire interval for low-severity surface fires is between 16 and 28 years. Again, the experience on the Glenwood Ranger District supports this assertion, as most fires on the Roberts Park allotment are low-severity fires. With a low frequency of high-intensity fire, it is unlikely that either wild fire or prescribed natural fire would substantially alter habitat types or successional stages on the Roberts Park allotment.

Fuel wood harvest: The Roberts Park allotment is open to personal use fuel wood harvest. Both dead and down and green fuel wood may be harvested on the allotment. Green fuel

wood harvest is limited to the Smoothing Iron and West Glenwood Green Fuel Wood Areas, portions of which occur on the Roberts Park allotment. Dead fuel wood harvest is limited to dead standing juniper of any size, dead ponderosa and pinyon pine less than 12 inches diameter at the root collar, or dead and down wood of any species and any size. Green fuel wood harvest is limited to green juniper or pinyon less than 12 inches diameter at the root collar. Harvest of fuel wood is prohibited within 100 feet of the center line of any stream, from within 150 feet of the center line of any paved highway, and on slopes greater than 40%.

The amount of fuel wood harvest on the Roberts Park allotment is not known, since dead and down permits are valid Forest-wide and live fuel wood permits are valid in any green fuel wood area forest-wide. In the 2003 fiscal year, the Glenwood Ranger District issued 141 dead fuel wood permits for a total volume of 258 ccf, and a total of 34 green fuel wood permits for a total volume of 53 ccf. Again, these permits could be utilized anywhere on the Gila National Forest open to dead and down harvest. Observations of the extent of harvest within the Smoothing Iron and West Glenwood fuel wood areas shows that harvest is light (perhaps 2 trees per acre) and generally restricted to areas adjacent to existing roads. This level of fuel wood harvest does not convert pinyon-juniper stands to a different habitat type (i.e., grassland), nor is it heavy enough to alter the existing seral stage of juniper woodland on the Roberts Park allotment.

Game harvest in GMU 23: The level of harvest and declines in pre-hunt populations within this area means that changes in habitat that benefit elk may not result in the actual predicted population increases. Specific to the Roberts Park allotment, all alternatives predicted minor changes in elk habitat as a result of the action and therefore no change to Forest-wide trend of increasing elk populations. The increased harvest may preclude stable to increasing populations despite no change in the amount of habitat. If harvest levels continue to increase, the elk population within the Roberts Park allotment could be reduced to the point where there is a surplus of suitable habitat even with minor changes in the amount of habitat.

For deer, harvest levels have declined and populations appear to be declining. The actions on the Roberts Park allotment will cause minor reductions in habitat, and so would not affect the decline; however, even with the reduced level of hunting, the forest-wide population and trend for mule deer may still be affected, causing a more rapid decline than would be predicted based on habitat quantity and/or quality.

Recreational driving, including user-created roads from fuel wood harvest: The relatively flat terrain on portions of the allotment has facilitated the creation of roads by Forest visitors. These roads are created by users to access fuel wood and recreation sites. There are a fairly large number of user-created roads on the allotment. Use of these roads is not heavy, and disturbance of non-game species is not an issue. Due to the access, however, hunting is facilitated for both big game and small game. Severson and Medina (1983) reviewed literature on the effect of recreation, roads, and hunting. They concluded that hunting and related activities are perhaps the greatest seasonal disturbance factors for big game, and noted seasonal shifts in habitat use and distribution pattern for both deer and elk as a result of hunting. Essentially, access precludes use of an area as a refugium for elk and deer, and most likely has a similar effect on smaller game. The cumulative impact of the

high access to the Roberts Park allotment is that there may be surplus of suitable habitat even with minor changes in the amount of habitat, due to the high level of access available.

Summary and Conclusions:

Summarized in the table below, are the anticipated effects of each alternative on forest-wide population and trend on the selected MIS. There will be small net loss of mid-seral riparian due to succession to late-seral riparian, but no anticipated changes in the amount of other habitat and the seral stages of existing vegetation. Observed or inferred forest-wide population trends are anticipated to continue with implementation of any of the alternatives. Cumulative effects from hunting may result in increasing the decline in mule deer populations, and may stabilize elk population levels. User created roads from recreational driving and fuel wood harvest may create a surplus of suitable habitat for elk and mule deer on the allotment, but this surplus would result from changes in distribution and not from population changes at the Forest level.

Summary of forest-wide habitat and population trends, and a summary of habitat changes by alternative on the Roberts Park allotment. “+” indicates an upward change, “-“ indicates a downward change, “=” indicates no change. An * indicates a change in secondary habitat only. “()” in the population column means the trend was inferred from qualitative data.

Species	Forest wide trends		Predicted habitat effects by alternative			
	Habitat	Population	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Elk	+	+	_*	_*	_*	_*
Mule deer	+	=/-	_*	_*	_*	_*
Abert squirrel	=	(=)	=	=	=	=
Blacktail jackrabbit	-	=	=	=	=	=
Beaver	+	=	-	-	-	-
Turkey	+	=	_*	_*	_*	_*
Mearns quail	=	(=)	=	=	=	=
Horned lark	-	=	=	=	=	=
Plain titmouse	=	=	=	=	=	=
Common flicker	=	=	=	=	=	=

Heritage Resources

There are prehistoric heritage sites known to exist within the allotment. Site types present in the area include prehistoric pueblos, field houses, artifact scatters, and fields. No disturbances due to grazing activities have been noted at known sites. There are no known rock shelters, rock art or structural sites with standing walls that could be affected by grazing activities, nor are there any special concerns noted by the archeologists who recorded the sites.

Alternative 1: Since no permit would be issued and livestock would not be allowed to graze on the allotment, there would be no effect on heritage resources due to grazing.

Alternative 2: The proposed action would allow grazing to continue below current levels. It does not authorize a shift to a more intensive grazing system, nor is there any available information indicating that cattle are seriously impacting known sites in the analysis area.

Alternative 3: This alternative would allow grazing to continue at or below current levels, with the improvement of the watering system by repairing the Joe Tank spillway, placing exclusion fences around Vigil Spring and repairing existing rim tank pipeline water systems in various pastures of the allotment. It does not authorize a shift to a more intensive grazing system, nor is there any available information indicating that cattle are seriously impacting known sites in the analysis area. The proposed reconstruction of the Joe Tank spillway and installation of fencing around Vigil Spring will involve new ground disturbance, so the effects of the two activities were analyzed, in consultation with the NM SHPO, and found to have “no effect” on heritage resources, in compliance with Section 106 of the NHPA and FLRMP guidelines (Ellis 1991, Graves 2004a and 2004b). If additions to the existing pipeline drinker systems are proposed, they will be handled as separate NEPA decisions and National Historic Preservation Act undertakings.

Alternative 4: This alternative is similar to Alternative 3, with the exception of the proposed improvements, so it was not analyzed in great detail. The effects of current management on heritage resources are similar to those for the Alternative 3 in that it will have “no effect” on historic properties.

Recreation

Approximately 28 miles of forest development roads (FDR), including all or part of FDR 104, FDR 105, FDR 106, FDR 712, FDR 712A lie within the allotment perimeter. These roads range from well-maintained dirt roads to rough un-maintained primitive forest roads. This area is very popular with the public, particularly in the fall when hunters use the area extensively. The San Francisco River runs through part of the allotment but there are no lakes and little fishing opportunities due to the limited access to the river.

The roads running through Sunflower Mesa, Vigil Canyon and Roberts Park areas are traveled heavily during the hunting season. Dispersed camping is popular along most of the roads in this area, particularly during the fall hunts. The entire area is open to driving off road, however there is only a minor amount of off-highway-vehicle use except that associated with hunting. Most of the recreation use in this area is classified as roaded natural.

With a majority of the allotment in a Recreation Opportunity Spectrum (ROS) of roaded natural, there is little conflict between recreation users of the forest and cattle grazing. There are individuals that are bothered by seeing cattle, but there have been almost no complaints received at the District office. For the most part, it appears that roaded natural recreation and cattle grazing are compatible uses. The amount of distress expressed by recreation users appears to dramatically increase as the utilization levels increase far in excess of any alternative identified. There have been no documented conflicts with grazing in this area in

the past. Since none of the proposed alternatives are considering excessive utilization, no conflict with roaded natural recreation users is anticipated by any alternative.

Fire and Fuels Management including Issue: *Grazing is needed to reduce fuels and fire hazard*

In general the present fire regimes within the allotment are considered low frequency with low intensities, due to inadequate fuel loading in the light fuels primarily in much of the pinyon/juniper vegetation. The allotment does have the potential for higher frequency fire regime in the ponderosa pine vegetation.

Allowing natural fire regimes to return into the ecosystem would be cost effective and consistent with land management objectives outlined in the Gila Forest Plan. Fire would then be allowed to resume its natural ecological role in ecosystem interaction, resulting in greater reproduction of grasses and forbes in woodland areas with a more open canopy coverage.

Surface fuels in the higher elevation are composed of needle cast and litter with light grasses. Therefore, effects on grazing at higher elevations would have a minimal effect on the fuel loading. The topography and woody fuel loading is sufficient to carry fire.

In lower elevations, a closed canopy is created by dense pinyon/juniper growth with a reduction in a grass understory. This reduction of grasses prevents fire from playing an active role in broadening canopy openings where more numerous grasses and forbes would be present.

Alternative 1, where no grazing would be permitted, would be ideal for implementing Fire Use and Managed Ignited Fire. No grazing allows for an abundance of light fuels, grasses, and shrubs to become established. The increased fuel loading would carry fire through the woody vegetation. Fire regimes in the pinyon/juniper are infrequent and an increase in the light fuels will be necessary to carry fire. The fuels loading would increase thus creating a greater chance of introducing fire back in the ecosystem.

Alternative 2 would allow for the fine fuels on the allotment to increase. Over an extended period of time this alternative would allow fire to again play a more active role in ecosystem management. Increasing the fine fuels would allow for more moderate to high intensity fires in the pinyon/juniper vegetative type. Wildland Fire Use for resource benefits could be beneficially supported within the rested pastures.

Alternative 3 would have an effect on the light fuels and grasses that are needed to carry fire. Wildland Fire Use and possible Management Ignited Prescribed Fire will be limited due to the absence of fine fuels in the lower elevations. In the ponderosa pine fuel type, the main carrier of fire is the pine needles, which are not affected by grazing. This alternative will reduce the risk of wildfires and limit the ability of fire to again play a natural role in the pinyon/juniper fuel type.

The risk of catastrophic fire within the pinyon/juniper type on the Roberts Park Allotment is low, and the risk of ground fire within the ponderosa pine type on the allotment is low. Risk of catastrophic fire within the allotment comes from a build-up of ladder fuels at the

boundary of pinyon/juniper and the ponderosa pine type. Such ladder fuels would be able to carry fire in the ponderosa pine canopy, resulting in a catastrophic, stand replacing fire.

In reviewing past, present, and ongoing and foreseeable projects within the Roberts Park Allotment, Managed Ignited and Fire-Use Wildfire type project activities are not anticipated to cause significant cumulative effects relating to fuels reductions.

Social and Economics including Issue - *The proposed action would reduce permitted numbers by 41.5 %-49% (from 4752 AM – or 396 head yearlong – to 2400-2800 AM or 200-240 head yearlong, with the greater number being dependent on range condition measures after 5 years at 200 head). This reduction, combined with cumulative changes in livestock numbers, would adversely affect the County tax base, economy, and socio-cultural components of potentially affected communities.*

Catron County is rural with large tracts of open lands and small communities that rely on a commercial center to augment their lifestyles. Recent population changes have moved Catron County from a rural, commodity production orientation to a more service-based economy with an aesthetic non-production orientation. Never-the-less, the large amount of government land (3.3. million acres) limits the property tax base and community expansion, and affects potential economic development and land use patterns. Almost all livestock production in Catron County is derived from state and federal lands.

Catron County's economy is a mixture of private and public sector outputs. Historically, the Catron County economy has been dependent upon public lands natural resource utilization (ranching, logging, hunting) as primary base industries, with cattle production the largest economic sector of the county.

In general it is economically important to permittees to continue a ranch operation. The profitability of the ranching operation of the livestock grazing permittee is directly impacted by changes in range development, maintenance, stocking rate, and grazing fees. Tangible economic benefits to the permittee vary in relation to the number of animals permitted and stocked. Permittee profit is based on income derived primarily from the sale of animals produced or fattened on the allotment (calves sold).

Economic

All alternatives would have direct and indirect effects on the permittee's economic and financial conditions. No Change (Alt 4) would continue income and costs associated with the existing permit. There would be no change in the profit or loss margin for the ranch operation. The No Grazing Alternative (Alt. 1) would eliminate the public lands portion of the Roberts Park grazing allotment. This would eliminate the costs and income associated with this permit. The Proposed Action (Alt. 2) would reduce income and, though no new infrastructure or development is proposed, maintenance costs would not decrease.

Alternative 3 would allow for adjustments to stocking rates based on available forage, so could have variable effects, both up and down, from year to year, on income. Maintenance and costs associated with any new improvements would increase. This alternative does have the potential for allowing the allotment to be fully stocked when conditions warrant.

Tangible economic benefits to the Forest vary in relation to the number of animals permitted and stocked. Forest Service benefit is based on grazing fees collected. Grazing fees collected

vary from year to year. Fees collected result from actual use rather than permitted numbers, and in most years would be less than the amount that could be collected if all permitted livestock were stocked. The Forest Service must conduct a certain amount of administration and monitoring of resource conditions on the allotment regardless of whether or how many livestock are permitted.

The No Change alternative (Alt.4) would continue grazing fee benefits and costs associated with the existing permit. There would be no change in fees collected or costs to administer the allotment for the Forest Service. The No Grazing alternative (Alt. 1) would eliminate the collection of grazing fees but some administration and monitoring would still be required to fulfill obligations to law and policy. The Proposed Action (Alt. 2) would reduce grazing fee benefit but not increase costs associated with the permit. Alternative 3 would collect varying grazing fees, potentially up to the fully stocked level, and increase the costs associated with the permit.

Social

Typically ranchers are well integrated into the small local communities where the potentially affected ranching families reside or do business. In Catron County the majority of long time residents believe that ranching is important to their community and way of life (USDI-BLM, Draft Environmental Impact Statement, Range Reform '94). In general, it is socially and culturally important to the permittees and their families to continue a ranch operation.

Most of the ranches in the County are family-run (Rael and Drummond, personal communication, July 9, 2003). According to Rael and Drummond, out of the existing 82 residential subdivisions, almost all of these were subdivided from former cattle ranches. The subdivision patterns have been for ranchers to subdivide their "surplus" lands in order to maintain their ranch operations.

Livestock ranchers contribute to local communities and the county, not only economically but also socially. The ranchers provide important community leadership roles in most of the rural communities in the County. A reflection of the customs and cultures of these rural communities is a devotion to family (often extended family vs. nuclear family), a strong sense of community, and an orientation to place tied to a strong sense of self, and individual responsibility.

All alternatives would have direct and indirect effects on the permittee's social condition and lifestyle. The No Change alternative (Alt. 4), the Proposed Action (Alt 2.) and Alternative 3 would continue current social conditions and trends, though to a lesser extent for Alt. 2. The No Grazing alternative (Alt. 1) would eliminate the public lands portion of the ranch operation and likely the ranch operation itself. The No Grazing alternative is the most likely to result in the permittee leaving the community.

All alternatives would also have direct, indirect, and cumulative effects on the local communities and Catron County. The No Grazing alternative (Alt. 1) would eliminate the public lands portion of the ranch operation and likely the ranch itself. The No Grazing alternative is the most likely to result in a change in land use from ranch to residential and would eliminate livestock taxes from the allotment. The Proposed Action alternative (Alt. 2) is the action alternative most likely to result in the greatest loss of revenue to the county based on livestock taxes as it has the most conservative stocking rate of the action

alternatives. Alternatives 3 and 4 (No Change) have the least affect to the county based on livestock taxes, as they both have the potential to fully stock the allotment, though Alternative 3 could have the more variable stocking rates and may be less likely to be fully stocked as often as Alternative 4.

Increased residential development of private lands could have several effects. It would reduce County income from livestock taxes while increasing County income from property taxes. Residential development of private lands could also result in additional burdens to the County for providing additional services and infrastructure to residents (i.e., law enforcements, fire protection, emergency medical service, wate disposal and road maintenance).

Impacts to the culture and customs of Catron County would be meaningful in the No Grazing alternative (Alt. 1), as another ranching operation would no longer be in business. If no grazing or substantial stock reduction results from this action and other grazing allotment decisions, the custom and culture related to ranching would be affected to a greater extent. If the implementation of several No Grazing decisions were to result in the sale of base property the county may eventually lose some of the culture and lifestyle tied to ranching. Selection of No Grazing alternative on several allotments would also impact the local community and residents. Small rural communities, like Reserve and Luna, have a lower capacity to respond to change. If the private property is sold to a developer the community may see an influx of new people but would lose some of the culture and lifestyle tied to ranching. This would transform the values, attitudes and beliefs (known as “customs and cultures”) from rural, land- based communities to predominantly urban-oriented newcomers (USDI-BLM, Final Environmental Impact Statement, Healthy Rangeland Standards & Guidelines, 1999).

If the Proposed Action, or Alternatives 3 or 4 were selected on this allotment there would be little change in social conditions or trends due to the decision. The permittee would likely continue in the ranching business. The trend to increased population would likely not be intensified by subdivision of private lands related to the ranch operation. If similar alternatives were selected on other allotments assessed in the County it would provide the means for the permittees to continue ranching. Personal characteristics such as self-sufficiency, independence and other traits associated with the ranching lifestyle would most likely be maintained.